

# **BASE MODEL**

## **TANKER SIDE MOUNT 2000 GALLON**

### **Compliance**

#### **NFPA 1901 COMPLIANT**

Unit will be manufactured and tested to current NFPA guidelines.

#### **INFORMATION AND DOCUMENTATION PROVIDED AT DELIVERY**

Information required at time of delivery to be supplied by the manufacturer shall include:

- (1) The manufacturer's record of apparatus construction details, including the following information:
  - (a) Owner's name and address
  - (b) Apparatus manufacturer, model, and serial number
  - (c) Chassis make, model, and serial number
  - (d) GVWR of front and rear axles
  - (e) Front tire size and total rated capacity in pounds (kilograms)
  - (f) Rear tire size and total rated capacity in pounds (kilograms)
  - (g) Chassis weight distribution in pounds (kilograms) with water and manufacturer-mounted equipment (front and rear)
  - (h) Engine make, model, and serial number, rated horsepower, related speed and governed speed
  - (i) Type of fuel and fuel tank capacity
  - (j) Electrical system voltage and alternator output in amps
  - (k) Battery make, model, and capacity in cold cranking amps (CCA)
  - (l) Chassis transmission make, model, and serial number; and if so equipped, chassis transmission PTO(s) make, model, and gear ratio
  - (m) Pump make, model, rated capacity in gallons per minute (liters per minute where applicable), and serial number
  - (n) Pump transmission make, model, serial number, and gear ratio
  - (o) Auxiliary pump make, model, rated capacity in gallons per minute (liters per minute where applicable), and serial number
  - (p) Water tank certified capacity in gallons or liters
  - (q) Foam tank (if provided) certified capacity in gallons or liters
  - (r) Paint manufacturer and paint number(s)
  - (s) Company name and signature of responsible company representative
- (2) Certification of slip resistance of all stepping, standing, and walking surfaces

- (3) If the apparatus has a fire pump or an industrial supply pump, the pump manufacturer's certification of suction capability
- (4) If the apparatus has a fire pump or an industrial supply pump, a copy of the apparatus manufacturer's approval for stationary pumping applications
- (5) If the apparatus has a fire pump or an industrial supply pump, the engine manufacturer's certified brake horsepower curve for the engine furnished, showing the maximum governed speed
- (6) If the apparatus has a fire pump or an industrial supply pump, the pump manufacturer's certification of the hydrostatic test
- (7) If the apparatus has a fire pump or an industrial supply pump, the certification of inspection and test for the fire pump or the industrial supply pump
- (8) If the apparatus has a fixed line voltage power source, the certification of the test for the fixed power source
- (9) If the apparatus is equipped with an air system, test results of due air quality, the SCBA fill station, and the air system installation
- (10) Weight documents from a certified scale showing actual loading on the front axle, rear axle(s), and overall fire apparatus (with the water tank full but without personnel, equipment, and hose)
- (11) Written load analysis and results of the electrical system performance tests required in Chapter 13
- (12) When the apparatus is equipped with a water tank, the certification of water tank capacity

The Fire Apparatus Manufacture will also provide documentation of the following items for the entire apparatus and each major operating system or major component of the apparatus:

- (1) Manufacturer's name and address
- (2) Country of manufacture
- (3) Source for service and technical information
- (4) Parts replacement information
- (5) Descriptions, specifications, and ratings of the chassis, pump (if applicable), and aerial device
- (6) Wiring diagrams for low voltage and line voltage systems to include the following information:
  - (a) Pictorial representations of circuit logic for all electrical components and wiring
  - (b) Circuit identification
  - (c) Connector pin identification
  - (d) Zone location of electrical components
  - (e) Safety interlocks
  - (f) Alternator-battery power distribution circuits
  - (g) Input/output assignment sheets or equivalent circuit logic implemented in multiplexing systems
- (7) Lubrication charts

- (8) Operating instructions for the chassis, any major components such as a pump or aerial device, and any auxiliary systems
- (9) Precautions related to multiple configurations of aerial devices, if applicable
- (10) Instructions regarding the frequency and procedure for recommended maintenance
- (11) Overall apparatus operating instructions
- (12) Safety considerations
- (13) Limitations of use
- (14) Inspection procedures
- (15) Recommended service procedures
- (16) Troubleshooting guide
- (17) Apparatus body, chassis, and other component manufacturer's warranties Special data required by this standard
- (18) Copies of required manufacturer test data or reports, manufacturer certifications, and independent third-party certifications of test results
- (19) A material safety data sheet (MSDS) for any fluid that is specified for use on the apparatus
- (20) One-(1) copy of the latest edition of FAMA's Fire Apparatus Safety Guide

The Fire Apparatus Manufacturer shall deliver with the apparatus all manufacturers' operations and service documents supplied with components and equipment that are installed or supplied.

## **SAFETY SIGNS, GENERAL REQUIREMENTS**

Safety signs with text shall conform to the general principles of ANSI/NEMA Z535.4, *Product Safety Signs and Labels*. Safety signs without text shall conform to the general principles for two-panel safety signs of ISO 9244, *Earth-Moving Machinery - Machine Safety Labels*.

Apparatus built for sale in the United States shall employ safety signage that complies with ANSI/NEMA Z535.4.

Apparatus built for sale outside the United States shall employ safety signage that complies with ANSI/NEMA Z535.4 or ISO 9244.

Safety signs referenced in this standard beginning with the letters FAMA shall conform to the text and graphics of the referenced safety sign number found in FAMA TC010, *Standard Product Safety Sign Catalog for Automotive Fire Apparatus*.

## **SAFETY SIGNS, BATTERY EXPLOSION**

A safety sign(s) FAMA01, shall be provided near the battery location that warns of potential injury or death that could be caused by the batteries. The label shall also state precautions that should be taken while working on or around the batteries.

## **SAFETY SIGNS, ROTATING SHAFTS**

Safety signs FAMA02, shall be provided on each side of the frame rail and in any other location(s) where rotating shaft hazards are apparent. The label shall warn of potential injury or death that could be caused by the movement of the shaft(s) as well as precautions that should be taken while working on or around them.

## **SAFETY SIGNS, HOT SURFACES**

Safety sign(s) FAMA03, shall be provided near any hot surface that warns of potential injury or death that could be caused by contact with the surface. The label shall also state precautions that should be taken while working on or around the surface.

## **SAFETY SIGNS, HOT EXHAUST**

A safety sign FAMA04, shall be provided near any hot exhaust surface that warns of potential injury or death that could be caused by contact with the surface. The label shall also state precautions that should be taken while working on or around the surface.

## **SAFETY SIGN, SPINNING FAN**

A safety sign FAMA05, shall be provided on both sides of the engine fan. The label shall warn of potential injury or death that could be caused by the movement of the fan as well as precautions that should be taken while working on or around them.

## **SAFETY SIGNS, SEATED & BELTED**

Safety signs FAMA07, which warns of the importance of seat belt use, shall be visible from each seat that is intended to be occupied while the vehicle is in motion.

## **SAFETY SIGN, AIR CONDITIONING REFRIGERANT**

If the apparatus is equipped with any type of air conditioning system, a safety sign FAMA09, shall be provided that is located in an area that would be visible to service personnel. The label shall state that the system contains R134A, the necessary precautions that should be taken and the dangers of working on or around the system.

## **SAFETY SIGN, CAB EQUIPMENT MOUNTING**

A safety sign FAMA10, which warns of the need to secure items in the cab, shall be visible inside the cab.

## **SAFETY SIGN, FIRE SERVICE TIRE RATING**

A safety sign FAMA12, which warns of the special requirements for fire service-rated tires, shall be

visible to the driver entering the cab of any apparatus so equipped.

### **SAFETY SIGN, ELECTRONIC STABILITY CONTROL**

If the apparatus is equipped with an electronic stability control system, a safety sign FAMA13, be provided inside of the cab in view of the driver warning of the dangers of improper operation of the apparatus and the importance of safe driving. The label shall also warn of potential injury or death that could be caused by improper operation of the apparatus.

### **SAFETY SIGN, CAB SEATING**

A safety sign FAMA14 shall be located in the cab visible to the operator.

The sign shall read:

This vehicle has a seating capacity of 2 personnel.

Carrying additional personnel may result in death of serious injury.

### **SAFETY SIGNS, HELMET WORN IN CAB**

A safety sign FAMA15, which warns not to wear helmets while the vehicle is in motion, shall be visible from each seat that is intended to be occupied while the vehicle is in motion.

### **SAFETY SIGN, VEHICLE BACKING**

A safety sign FAMA17, shall be provided inside of the cab in view of the driver advising of proper procedures to following when the apparatus is in reverse motion. The label shall also warn of potential injury or death that be caused by failing to follow proper procedures.

### **SAFETY SIGNS, INTAKE/DISCHARGE CAP PRESSURES**

If the apparatus is equipped with a pump system, safety signs FAMA18, shall be provided in all areas that intakes and discharges are capped. The label shall give instruction on how to properly remove the cap. The label shall also warn of potential dangers, injury or death that be caused by failing to follow proper cap removal procedures.

### **SAFETY SIGNS, HOSE RESTRAINT REQUIRED**

A safety sign FAMA22, which warns of the need to secure hose, shall be visible to personnel at each hose storage area.

### **SAFETY SIGNS, CLIMBING METHOD INSTRUCTION**

Safety signs FAMA23, which warns of the proper climbing method, shall be visible to personnel

entering the cab and attach designated climbing location on the body.

### **SAFETY SIGNS, RIDING ON EXTERIOR**

Safety signs FAMA24, which warns personnel not to ride on the vehicle, shall be located at the rear step areas and at any cross walkways.

### **SAFETY SIGN, PUMP TRAINING**

A safety sign FAMA25, which warns of the need for training prior to operating the apparatus, shall be located on the pump operator's panel.

### **SAFETY SIGNS, NO-STEP**

Safety signs FAMA26, shall be provided in any horizontal location that a firefighter may feel tempted to use as a step but is not designed, constructed or intended to be a stepping, standing or walking surface. The label shall state that the surface is not intended for this purpose and indicate potential injury or death in doing so.

### **SAFETY SIGN, SIREN NOISE**

A safety sign FAMA42, shall be provided inside the driver's door warning of potential injury that could be received from the noise of the siren. The label shall also state safety precautions that should be taken when the siren is in use.

### **SAFETY SIGN, APPARATUS MOVEMENT**

A permanently affixed movement warning plate shall be installed near the door ajar light that reads:

"DO NOT MOVE APPARATUS WHEN LIGHT IS ON".

### **PLATE, FLUID CAPACITY**

A permanently affixed fluid data plate shall be installed in the driving compartment to indicate the type and quantities of the following fluid used in the vehicle.

The following information shall also be supplied on the

Fluid Data Plate: Chassis Manufacturer  
Production Number  
Vehicle Identification Number

### **PLATE, OVERALL HEIGHT/LENGTH/WEIGHT**

An Overall Height/Length/Weight information plate shall be installed that can be clearly identified and

visible to the driver while in the seated position showing the apparatus completed overall height, length, (in feet and inches) and gross vehicle weight (in tons) current to the apparatus manufactured date.

If changes to the vehicle occur while in service, the department must revise the overall height-length weight plate.

## **Service and Parts Requirements**

It is the intent of the buyer to purchase products that will have technical support within the State of New Mexico. The bidder must have available a complete factory authorized parts and service center employing factory trained service and parts representatives with full mechanical rebuild/repair equipment capabilities. The bidder shall have the ability to provide on-site repair. The bidder shall have at least two EVT (Emergency Vehicle Technician) certified staff members. Third party contracts will not be acceptable. A copy of the EVT certifications shall be provided with the bid documents.

The bidder shall have full time shipping personnel. The bidder shall stock ample parts inventory to minimize vehicle down time. The buyer may exercise their right to inspect each bidder's facilities to determine their qualifications to provided parts and service on an acceptable basis.

The bidder must have a minimum of five (5) years of experience servicing apparatus in New Mexico. The bidder must supply ten (10) references within New Mexico with the fire department name, contact name, phone and email address provided.

**NO EXCEPTIONS.**

## **CHASSIS**

### **CAB COLOR**

The cab shall be painted by the OEM. One solid color - RED FLNA 3225E1

### **STEEL WHEELS PAINTED JOB COLOR**

Chassis steel wheels will be painted job color from the OEM.

### **FREIGHTLINER M2 2 DOOR**

Freightliner M2 106 Conventional – 2022

Minimum GVWR: 2-door – 45,600 lbs.

196 W/B Side Mount

### **ENGINE**

Cummins L9 – 360EV HP @2200 RPM; 1150 lb/ft @ 1200 RPM

Maximum 60 MPH road speed limit (per NFPA 1901)

Side of hood air intake with NFPA compliant ember screen and fire retardant Donaldson or equal air cleaner.

Minimum 320 amp alternator

Minimum 2000CCA, 370RC batteries with threaded studs under left side cab

Positive load disconnect with cab mounted control switch mounted outboard of driver's seat

Turbocharged 18.7 cfm air compressor with internal safety valve and mechanical governor

Exhaust brake integral with variable geometry turbo and ON/OFF dash switch. Must automatically activate apparatus stop lamps.

Right side outboard under step mounted horizontal aftertreatment system with horizontal tailpipe exiting forward of right rear wheels

Engine aftertreatment device, automatic over the road active regeneration and dash mounted single regeneration request/inhibit switch

Diesel exhaust fluid tank – 6 gallon under left cab aft of fuel tank

Horton Drivemaster Advantage ON/OFF fan drive, automatic control

1100 square inch aluminum radiator

Electric grid air intake warmer

## **TRANSMISSION**

Allison 3000 EVS automatic

PTO provision for Chelsea 280 series PTO (2)

Vocation package 198 for fire vehicle applications

Magnetic drain plugs

Push-button electronic shift control – dash mounted

Water-to-oil cooler in radiator tank



Synthetic fluid

## **FRONT AXLE**

14,700 lb. Set-back with drop

16.5X5Q+ cast spider heavy duty cam front brakes, double anchor, fabricated shoes

Fire and Emergency Severe Service, non-asbestos front lining

Cast iron front brake drums

Front oil seals

Vented oil front hub caps with window, center and side plugs

Automatic slack adjusters with stainless steel clevis pins

Power steering

2-quart see-through power steering reservoir

14,600 lb. taperleaf suspension

Maintenance-free rubber bushings

Shock absorbers

## **REAR AXLE**

31,000 lb. U-Series fire vehicle service single

5.63 rear axle ratio

Iron carrier with standard axle housing

Extended lube main driveline with half-round yoke

16.5X7 P cast spider cam rear brakes, double anchor, cast shoes

Fire and Emergency Severe Service non-asbestos rear brake linings

Brake cams and chambers on forward side of drive axle

Rear oil seals

Longstroke 1-drive axle spring parking chambers

Automatic slack adjusters

31,000 lbs. flat leaf spring rear suspension with helper and radius rod for Fire/Emergency service

Fore/Aft control rods

## **BRAKE SYSTEM**

WABCO 4S/4M ABS

Air system pressure protection and 85 psi pressure protection for air horns

Relay valve with 5-8 psi crack pressure

WABCO System Saver HP with integral air governor and heater

Auto Drain valve – wet tank

## **FUEL TANK & SYSTEM**

Minimum 50 gallons/189 liter rectangular polished aluminum mounted beneath left front cab door.

Bright aluminum treadplate trim package will be installed beneath the cab doors above the secondary step and the bottom of the cab and the first and secondary step.

Cab steps shall be polished stainless steel

Fuel/water separator with water in fuel sensor

High temperature reinforced nylon fuel line

Fuel cooler

## **TIRES & WHEELS**

Front: Michelin or equal XZE 12R22.5 16 ply radial

Rear: Michelin or equal XDN2 315R22.5 20 ply radial

22.5x8.25 10-hub piloted steel disc (6)

## **HUBS**

Conmet Preset Plus premium iron

## **CAB EXTERIOR**

2-door cab models – 106 inch BBC flat roof aluminum conventional cab

Air cab mounting

Cab roof reinforcements for roof mounted lightbar

Safety yellow left and right interior grab handles and exterior non-slip grab handles

Chromed grille

Chromed air intake grille with ember screen

Fiberglass tilting hood

Dual 25 inch round Stuttertone hood mounted air horns (one left and one right) with shields.

Left and right air horn foot switches with momentary dash switch for horn button

Door locks and ignition switch keyed alike

Dual West Coast mirrors; bright finish; heated; left and right remote adjustment 8 inch bright finish convex mounted under primary mirrors; right side down view mirror

Aftertreatment system on right side with polished diamond plate cover

Electric horn warning system for park brake when not set with door open and all ignition key positions

Tinted windshield and door glass

Manual door window regulators

Three-piece 14 inch chromed steel bumper with collapsible ends

Front tow hooks – frame mounted (2)

## **CAB INTERIOR**

Molded inner door panels

Opal gray vinyl interior

Black mats with single insulation

Heater, defroster and air conditioner with standard HVAC ducts and controls with recirculation switch

Premium cab insulation

Door activated dome/red map lights, forward left and right and (if 4-door) rear left, right and center.

Manual cab door locks

Seats:

- Driver: Seats, Inc 911 Universal Series high back air suspension driver seat with NFPA 1901 compliant seat sensor
- Officer: Seats, Inc 911 Universal Series high back air suspension driver seat with NFPA 1901 compliant seat sensor

Black Cordura Plus cloth seat covers

NFPA compliant high visibility orange seatbelts

All seating positions shall have a seat sensor that advises the driver through a visual display on the dash within the driver zone of seatbelt status for all positions in the apparatus. The sensors shall be connected directly to the VDR (vehicle data recorder (VDR) integrated into the dash. Connection for downloading recorded data shall be through the J1939 port.

Adjustable tilt and telescoping steering column with 4-spoke 18 inch steering wheel

Driver and officer side interior sunvisors

## **INSTRUMENTS & CONTROLS**

Engine remote interface with park brake interlock

Low air pressure indicator light and audible alarm

2 inch primary and secondary air pressure gauges

Engine compartment mounted air restriction indicator with graduations and warning light in dash

Woodgrain driver and center instrument panel

Electronic cruise control with switches in left switch panel

Ignition switch with non-removable key

Heavy duty onboard diagnostics interface connector located below left dash

2 inch fuel gauge

Engine remote interface for remote throttle

Engine remote interface connector in engine compartment

Engine coolant temperature gauge

Engine oil pressure gauge

2 inch transmission temperature gauge

Engine and trip hour meters integral within driver display

Electronic Stability Control

Power and ground wiring provision in overhead console

Electronic MPH speedometer with secondary KPH scale without odometer

Vehicle speed sensor

Electronic 3000 rpm tachometer

Digital voltage display integral in driver display

Electric windshield wiper motor and display

Alternating flashing headlamp system with fire apparatus controlled engagement

Parking brake system with dash valve control auto/neutral and warning indicator

Self-cancelling turn signal switch with dimmer, washer/wiper and hazard in handle

## **AIR OUTLET**

A ¼" male plug air hose inlet shall be connected to the air reservoir tank. A ¼" inline check valve will be installed in the line. Air hose connection will provide the capability of filling the air brake system with air from an outside source. It will be located beneath the driver's cab door above the fuel tank.

## **CAB DOOR RETRO-REFLECTIVE STRIPING**

Chevron style retro-reflective striping shall be added to the inside of the cab doors in accordance to NFPA requirements. It shall cover not less than 96 sq.in of each door meeting MFPA 1901.

## **TIRE PRESSURE MONITORING SYSTEM**

There shall be a RealWheels LED AirGuard Set and Go, six (6) wheel stabilizer kit, for 2.00 inch round holes and LED indicators proper air pressure in the tire.

The inner tire on the rear dual axle shall have an extension provided that will pass through the outside rim and attach to the stabilizer providing an unobstructed view for inspection of the inner tire air pressure.

The indicators shall be installed by the department after the unit has been fully equipped and the tires set to the manufactures recommended pressure rating. The indicators will calibrate to that initial air pressure setting upon installation and will intermittently flash when the tire pressure is reduced by 5 to 10 psi from its original calibrated pressure.

## **OVERALL HEIGHT AND LENGTH**

The overall height shall not exceed 9' 9". The overall length shall not exceed 27'.

## **PUMP MODULE**

### **CROSSLAY PRECONNECTIONS**

Two (2) crosslay hosebeds shall be provided on the pump module. Each of the two (2) crosslay areas shall have a capacity for up to 200' of 2.0" double-jacket fire hose double stacked. The crosslay floor and side walls shall be constructed of 3/16" (.188) smooth aluminum plate. The floor shall be slotted to prevent the accumulation of water and allow for ventilation of wet hose. One (1) 1/4" (.25") smooth aluminum plate fixed divider with a sanded finish shall be provided to separate the two (2) hose storage areas.

The crosslay hose bed shall consist of a 2" heavy-duty hose coming from the pump discharge manifold to the 2" swivel for each hosebed. The hose shall be connected to a manually operated 2" Akron valve. The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

## **SIDE MOUNT PUMP MODULE**

### **PUMP COMPARTMENT**

The complete apparatus pump compartment will be constructed of a combination of structural tubing and formed sheet metal. The same materials used in the body will be utilized in the construction of the pump compartment. The structure will be welded utilizing the same A.W.S. Certified welding procedure as used on the structural body module. These processes will ensure the quality of structural stability of the pump compartment module.

The pump compartment module will be separated from the apparatus body with a gap. This gap is necessary to accommodate the flexing of the chassis frame rails that are encountered while the vehicle is in transit so that harmful torsional forces are not transmitted into the structural framework.

The front of the pump module will be overlaid entirely above the frame rails with bright aluminum diamond plate fastened with mechanical stainless steel fasteners.

### **FLEX PUMP MODULE MOUNTING SYSTEM**

The entire pump module assembly will be mounted above the chassis frame rails exclusively with not less than four (4) torsion isolator assemblies to reduce the vibration and stress providing an extremely durable body mounting system.

The pump module substructure will be mounted above the frame to allow independent flexing to occur between the body and the chassis. Each assembly will be mounted to the chassis frame rails with steel, gusseted mounting brackets. Each body mount bracket will be mounted to the side chassis frame flange with 5/8" Grade 8 Geomet coated (anti-corrosion) bolts. Each mounting bracket will be bolted to the frame using not less than four (4) bolts.

There will be no welding to the chassis frame rail sides, web or flanges, or drilling of holes in the top or bottom frame flanges between axles. All pump module to chassis connections will be bolted so that in the event of an accident, the module will be easily removable from the truck chassis for repair or replacement.

Because of the constant vibration and twisting action that occurs in chassis frame rails and suspension, the torsion mounting system is required to minimize the possibility of premature pump module structural failures.

### **LEFT SIDE OPERATORS PANEL & PUMP PANEL**

The pump operator's panel will be located on the left side of the apparatus pump compartment. The panel will be split into an upper and lower section.

The panels will be hinged minimum 14 gauge 304 stainless steel with brushed finish and thumb-release latches.

The upper panel will house gauges and controls and be hinged downward to allow easy access to mounted components. The door will have a stainless steel hinge and push button latches.

The lower panel on the left side will be hinged as described above to allow swinging the panel toward the front of the apparatus.

### **AIR CHUCK OUTLET**

There will be a quick disconnect air chuck outlet provided and installed on the apparatus at the left side lower pump compartment panel/sill. The air chuck outlet will be plumbed to the chassis air system and have on/off valve and label.

### **RIGHT SIDE PUMP PANELS STYLE**

There will be two (2) pump panels on the right side of the pump compartment, one (1) upper and one (1) lower. Each panel will be accessible by a quick-release mechanical type latch, closing against a door seal. Both panels will be easily removed for access to the pump for service.

### **RIGHT & LEFT SIDE BRUSHED STAINLESS STEEL PANELS & OVERLAYS**

The panels for the pump compartment on the left and right side will be made from minimum 14 gauge 304 stainless steel capable of withstanding the conditions and effects of extreme weather and temperature changes.

### **RUNNING BOARDS**

The pump compartment running boards will be made of a structural tubular framework. They will be not less than 12 inches deep. The tubular frame support all loads by transmitting the loads through the pump compartment structure directly to the chassis frame rails.

The running boards will be independent of the apparatus body and will be integrated to the pump compartment structure only, eliminating any pump compartment to body interference. This is essential in keeping a truly 'modular' configuration. Slip-resistant abrasive adhesive materials will be applied to the top surface of the running board framework to provide a suitable stepping surface where applicable.

They will have a .188 inch embossed (no exceptions) aluminum diamond plate overlays installed.

### **PUMP - HALE MBP 750 GPM**

### **PUMP ASSEMBLY**



The pump shall be of a size and design to mount on the chassis rails of commercial chassis and have the capacity of 750 gallons per minute (U.S. GPM), NFPA-1901 rated performance.

The entire pump shall be assembled and tested at the pump manufacturer's factory.

The pump shall be driven by the truck transmission mounted PTO. The engine shall provide sufficient horsepower and RPM to enable pump to meet and exceed its rated performance within the torque rating of the PTO, truck transmission and drive line components.

The entire pump shall be hydrostatically tested to a pressure of 600 PSI. The pump shall be fully tested at the pump manufacturer's factory to the performance spots as outlined by the latest NFPA Pamphlet No. 1901. Pump shall be free from objectionable pulsation and vibration.

The pump body and related parts shall be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 PSI (2069 bar). All metal moving parts in contact with water shall be of high quality bronze or stainless steel. Pump utilizing castings made of lower tensile strength cast iron not acceptable.

Pump body shall be vertically split, on a single plane for easy removal of entire impeller assembly including clearance rings.

Pump shaft to be rigidly supported by two bearings for minimum deflection. The bearings shall be heavy-duty, deep groove ball bearings in the gearbox and they shall be splash lubricated.

The pump impeller shall be hard, fine grain bronze of the mixed flow design; accurately machines, hand-ground and individually balanced. The vanes of the impeller intake eye shall be hand ground and polished to a sharp edge and be of sufficient size and design to provide ample reserve capacity utilizing minimum horsepower.

Impeller clearance rings shall be bronze, easily renewable without replacing impeller or pump volute body.

The pump shaft shall be heat-treated, electric furnace, corrosion resistant stainless steel. Pump shaft must be sealed with double-lip oil seal to keep road dirt and water out of gearbox.

## **GEARBOX**

The gearbox shall be manufactured and tested at the pump manufacturer's factory. Pump gearbox shall be of sufficient size to withstand the torque of the engine in pump operating conditions.

The drive unit shall be designed of ample capacity for lubrication reserve and to maintain the proper operating temperature.

The gearbox drive shafts shall be of heat-treated chrome nickel steel shall withstand the full torque of the engine and pump operating conditions.

All gears, both drive and pump, shall be of highest quality electric furnace chrome nickel steel. Bores shall be ground to size and teeth integrated and hardened, to give an extremely accurate gear for long life, smooth, quiet running, and higher load carrying capability. An accurately cut helical design shall be provided.

The pump ratio shall be selected by the apparatus manufacturer to give maximum performance with the engine and transmission selected.

## **CERTIFICATION**

The pump will perform and meet the following tests:

- 100% of rated capacity @150 PSI net pump press.
- 100% of rated capacity @ 165 PSI net pumps press.
- 70% of rated capacity @ 200 PSI net pump press.
- 50% of rated capacity @ 250 PSI net pump press.
- Pump shall be tested at manufacturer under full NFPA suction conditions.

## **PRIMING PUMP**

The priming pump shall be a positive displacement, oil-less rotary vane electric motor driven pump conforming to NFPA-1901 rated performance requirements. The pump body shall be manufactured of heat-treated anodized aluminum for wear and corrosion resistance. The pump shall be capable of producing a minimum of 24 Hg vacuum at 2,000 feet (609.6m) above sea level. The electric motor shall be a 12 VDC totally enclosed unit. The priming pump shall not require lubrication. The priming pump shall operate by a single pull control valve mounted on the pump operator's panel. The control valve shall be manufactured of bronze construction.

## **STEAMER INLETS**

Two 6" (15.24cm) steamer inlets will be provided, one (1) on the left side and two (2) on the right side. Both inlets shall have long handle chrome vented caps and a screen.

## **ANODES**

The Fire Pump shall be equipped with replaceable anodes. The pump shall have one anode on each intake section and one anode on the discharge section of the Fire Pump.

## **RELIEF VALVE**

There shall be one (1) suction side stainless steel relief pump valve provided on the pump system.

## **PUMP CERTIFICATION TEST PLATE**

A permanently affixed plate shall be installed at the pump operators position that will provide the rated discharge and pressures together with the speed of the engine as determined by the certification test for each unit, the position of the parallel/series pump used and the no load governed speed of the engine as stated by the engine manufacturer on a certified brake horsepower curve.

## **DISCHARGE VALVES**

The valves including the ball shall be constructed of 304 stainless steel. The valves shall be bi-directional with full flow capability. The valves shall be of fixed pivot ball design with a flow pressure rating to meet NFPA-1901 standards. The valve shall have a single piece seat and seal design and shall have an operating pressure of 400 psi. All 3.0" (7.62cm) discharge valves shall be supplied with a true slow close mechanism per NFPA specifications. The valve shall be warranted for a period of ten (10) years on all stainless steel components, against defects in design and manufacturing processes.

## **PIPING AND MANIFOLDS**

All the plumbing and/or piping in the pump module shall be of 304 stainless steel or flexible piping for long life. All stainless steel castings shall be a minimum of schedule 40. All NPT pipe thread connections larger than ¾" connections shall be avoided in the construction of the plumbing system. The following valves shall have groove connection: tank fill, all 2" and 2-½" (5.08 and 6.35cm) pre-connect valves.

The flexible piping shall be black SBR synthetic rubber hose with 300 working pounds and 1200 pounds burst pressure for sizes 1.5 through 4". Sizes ¾", 1" and 5" are rated at 250 pound working and 1000 pound burst pressure. All sizes are rated at 30 HG vacuum. Reinforcement consists of two plies of high tensile strength tire cord for all sizes and helix wire installed in sizes 1 through 5" for maximum performance in tight bend applications. The material has a temperature rating of -40 degrees F to 210 degrees F. Full flow couplings are precision machined from high tensile strength stainless steel. All female couplings are brass. ¾" and 1" male and Victaulic couplings are brass.

## **APPARATUS PLUMBING LABELING**

Verbiage tag bezels will be installed for each control. The bezel assemblies will be used to identify apparatus components. These tags will be designed and manufactured to withstand the specified apparatus service environment and will be backed by a warranty equal to that of the exterior paint and finish. The verbiage tag bezel assemblies will include a chrome-plated panel-mount bezel with durable easy-to-read UV resistant polycarbonate inserts featuring the specified verbiage and color coding. These UV resistant polycarbonate verbiage and color inserts will be subsurface screen printed to eliminate the possibility of wear and protect the inks from fading. Both the insert labels and bezel will be backed with 3M permanent adhesive, which meets UL969 and NFPA standards.

## **MASTER PUMP DRAIN**

The pump shall be equipped with a Class 1 Master Pump drain to allow draining of the lower pump cavities, volute and selected water carrying lines and accessories. The drain shall have an all brass body with a stainless steel return spring.

## **U.L. TEST POINTS**

Two (2) U.L. test points shall be mounted on the pump panel for testing of the vacuum and pressures. The test points shall be a single piece with individual ports for suction and discharge.

## **VALVE CONTROLS**

Class 1 locking push pull controls shall be provided for valve actuation. The chrome plated zinc handles shall have a recessed area for 1" x 3" (2.54 x 12.70cm) identification tags. The controls shall be locked in any position.

## **DISCHARGE GAUGES**

Individual 2-½ (6.35cm) line gauges for each 2" (5.08cm) or larger discharge shall be provided and mounted adjacent to the discharge valve control handle. The gauges shall indicate pressure from 0 to 400 PSI. The pressure gauge shall be fully filled with pulse and vibration dampening Interlube® to lubricate the internal mechanisms to prevent lens condensation and to ensure proper operation to minus 40 degrees F. To prevent internal freezing and to keep contaminants from entering the gauge, the stem and Bourdon tube shall be filled with low temperature material and be sealed from the water system using an isolating Sub Z diaphragm located in the stem. A colored bezel shall be supplied for resistance to corrosion and to protect the lens and case from damage.

## **INDIVIDUAL DRAINS**

All 2" (5.08cm) or larger discharge outlets shall be equipped with a ¾" ball valve drain valve or larger.

## **WIRING HARNESS**

The electrical wiring harness shall be manufactured using GXL wire as SAE- J1128 rated performance requirements. The electrical wiring harness shall be covered by a black split convoluted loom, rated at a minimum of 275° F. All terminals shall meet the minimum pull test as required by the manufacturers pull test and crimp measurement data. All splices shall be manufactured using the ultra-sonic splice process. The harness shall be 100% connected to a Dynalab® circuit tester to insure continuity and correct assembly.

## **LEFT SIDE DISCHARGE**

One (1) 2-½" (6.35cm) discharge with a stainless steel valve shall be located on the left side panel. The valve shall be a quarter turn ball type and fixed pivot design to allow easy operation at all pump pressures. The 2-½" (6.35cm) outlet shall be equipped with an integral, stainless steel, 30-degree elbow terminating with 2-½" (6.35cm) MNST threads. A chrome vented cap and chain shall also be supplied. The valve shall be controlled at the side panel with a push pull control. There shall be a Class 1 2 ½" pressure gauge mounted on the panel near the control to indicate pressure. The discharge shall also come equipped with a quarter-turn ¾" drain valve. The discharge must be capable of flowing 700 GPM or greater.

### **LEFT SIDE INTAKE**

One (1) 2-½" (6.35cm) intake with a brass valve shall be located on the left side panel. The valve shall be a quarter turn ball type and fixed pivot design to allow easy operation at all pump pressures.

The valve shall be controlled at the side pump panel with a swing handle.

The valve shall come equipped with a chrome plug, chain, inlet strainer, 2-½ (6.35 cm) NST chrome inlet swivel and ¾" drain valve.

### **RIGHT SIDE DISCHARGE**

One (1) 2-½" (6.35cm) discharge with a brass valve shall be located on the right side panel. The valve shall be a quarter turn ball type and fixed pivot design to allow easy operation at all pump pressures.

The 2-½" (6.35cm) outlet shall be equipped with an integral, stainless steel, 30-degree elbow terminating with 2-½" (6.35cm) MNST threads.

A chrome vented cap and chain shall also be supplied. The valve shall be controlled with a chrome-plated push/pull locking "T" handle mounted on the pump panel. There shall be a Class 1 2 ½" pressure gauge mounted on the panel near the control to indicate pressure. The discharge shall also come equipped with a quarter-turn ¾" drain valve. The discharge must be capable of flowing 700 GPM or greater.

### **RIGHT SIDE DISCHARGE**

The 2-½" (6.35cm) outlet shall be equipped with an integral, stainless steel, straight flange terminating with 2-½" (6.35cm) MNST threads.

A chrome vented cap and chain shall also be supplied. The valve shall be controlled with a chrome-plated push/pull locking "T" handle mounted on the pump panel. There shall be a Class 1 2 ½" pressure gauge mounted on the panel near the control to indicate pressure. The discharge shall also come equipped with a quarter-turn ¾" drain valve. The discharge must be capable of flowing 700 GPM or greater.

## **TANK TO PUMP**

One (1) 3" (7.62cm) brass valve shall be installed between the water tank and the pump. The valve shall be a quarter turn ball type. The valve shall be controlled with a chrome-plated push/pull locking "T" handle mounted on the pump panel.

## **TANK FILL**

One (1) 2.00" (5.08 cm) discharge with a brass valve shall be plumbed to the tank. The valve shall be a quarter turn ball type and fixed pivot design to allow easy operation at all pump pressures. The valve outlet terminates with 2.00" (5.08 cm) grooved connection. Valve shall be controlled at the side panel with a chrome-plated push/pull locking "T" handle mounted on the pump panel.

## **CROSSLAY 1 ¾" DISCHARGES**

Two (2) double crosslays shall be installed on apparatus. Each section of the crosslay shall hold 200' of 1-3/4" double jacket fire hose. A 1-1/2" mechanical swivel hose connector shall be used in each crosslay to provide access of hose in either direction. Each crosslay shall have one (1) 2" (5.08cm) brass valves. The valve shall be a quarter turn ball type and fixed pivot design to allow easy operation at all pump pressures. The 2" (5.08cm) valve outlet terminates with 2" (5.08cm) grooved connection. The discharge shall be plumbed to the crosslay trays using 2" (5.08cm) schedule 10 stainless steel pipe. The pipe shall terminate in a stainless steel swivel with 1 ½" (3.81cm) NH thread. The swivel shall allow the hose to be pulled from either side of the apparatus. The pipe shall be held in place by a 2 piece stainless steel bracket. Each valve shall be controlled with a chrome-plated push/pull locking "T" handle mounted on the pump panel. There shall be a Class 1 2 ½" pressure gauge mounted on the panel near each control to indicate pressure. Each discharge shall also come equipped with a quarter-turn ¾" drain valve. Each discharge shall be foam capable. Each discharge must be capable of flowing 180 GPM or greater.

## **MASTER GAUGES**

Class 1 4-½ (11.43cm) gauges shall be provided. The master discharge gauge shall indicate pressure from 0 to 400 PSI. The master intake gauge shall indicate pressure from -30hg to 400 PSI. The gauges shall be Interlube filled pressure gauges and handle pressures from 0 to 400 PSI. The pressure gauge shall be fully filled with pulse and vibration dampening Interlube® to lubricate the internal mechanisms to prevent lens condensation and to ensure proper operation to minus 40 degrees F. To prevent internal freezing and to keep contaminants from entering the gauge, the stem and Bourdon tube shall be filled with low temperature material and be sealed from the water system using an insulating Sub Z diaphragm located in the stem.

## **TOTAL PRESSURE GOVERNOR (TPG)**

Apparatus shall be equipped with a Class 1 "Total Pressure Governor" (TPG) that is connected to the Electronic Control Module (ECM) mounted on the engine. The "TPG" will operate as a

pressure sensor (regulating) governor (PSG) utilizing the engine's J1939 datalink for optimal resolution and response provided that J1939 is supported by the engine manufacturer. If J-1939 engine control is not supported, then analog remote throttle control shall be provided by the TPG, subject to J1939 RPM data availability.

The TPG shall utilize control algorithms that minimize pressure spikes during low or erratic water supply situations and display operational status messages to the operator under certain circumstances. The TPG shall be backwards compatible to any engine that supplies J1939 RPM, Temperature and Oil Pressure information providing the ability to maintain consistent fleet fire-fighting capability.

TPG shall incorporate the ability to use either a 300 PSI or a 600 PSI transducer for best operation. PSG system diagnostics shall be built in and accessible by service technicians.

Programmable presets for RPM and Pressure settings shall be easily configurable. The TPG shall incorporate configurable parameters in the menu structure accessed through a diagnostic password.

The "TPG" shall also include indication of engine RPM, system voltage, engine oil pressure and engine temperature with audible alarm output for all. The "TPG" uses the J1939 data bus for engine information, requiring no additional sensors to be installed.

The TPG shall use J1939 broadcast warnings for the alarm points as a standard.

## **TANK LEVEL GAUGE**

The apparatus shall be equipped with a Class1 "ITL-40" Tank Level Gauge for indicating water or foam level. The Tank Level Gauge shall indicate the liquid level or volume on an easy to read LED display and show increments of 1/8 of a tank.

Each tank level gauge system shall include:

- 1) A pressure transducer that is mounted on the outside of the tank in an easily accessible area. Sealed foam tanks will require zero pressure vacuum vents.
- 2) A super bright LED display viewable from 180 degrees with a visual indication at nine accurate levels.
- 3) A set of weather resistant connectors to connect to the digital display, to the pressure transducer and to the apparatus power. Additional (slave) displays (if requested) are to be easily integrated and will receive data from the same source as the Master Display. No additional transducers shall be required.
- 4) The system shall include the ability to display "text messages"
- 5) The system shall include built-in diagnostic capabilities.

## **REMOTE THROTTLE CONTROL**

The apparatus shall be equipped with a Class 1 vernier style remote throttle control. The operation of the remote throttle shall consist of seven full turns from idle to wide open engine speed. The throttle shall have a red center button to quickly return the engine to idle when depressed.

## **PUMP PANEL LIGHTS**

There will be adequate illumination provided at the side pump panels with the installation of shielded LED light assemblies, one (1) on the left and one (1) on the right side pump compartment.

One (1) pump panel light at the operator's panel will be illuminated at the time the pump is ready to pump and it is "OK TO PUMP". The Pump shift has been completed and the chassis automatic transmission is engaged.

The remaining lights will be controlled by a switch located on the side operator's panel.

## **REAR DIRECT TANK FILL**

A 3" rear direct water tank fill shall be provided. The tank fill shall be located driver side rear of the tank.

The tank fill shall be controlled at the valve. The valve shall be constructed of brass and shall be slow closing per NFPA. The tank fill connection shall include a strainer, 3" chrome NST swivel, chrome plug and retainer device.

## **BODY**

### **REAR RUBRAIL**

The lowest edge of the rear tailboard will be trimmed with an extruded C-Channel aluminum extrusion rub rail not less than 3" high x 1.50" deep. Each end of each rail will be capped with a contoured black formed PVC end cap for safety matching the shape of the rub rail.

The inside flat surface will be designed to apply retro-reflective striping for added visibility and rear clearance lights.

The rub rail will be secured with stainless steel fasteners and spaced away from the apparatus body with .50 inch nylon spacers to help absorb moderate impacts and prevent the collection of water and debris for easier cleaning.

### **HOSEBED DIVIDER**



There will be a full height adjustable divider provided and installed in the hosebed area of the apparatus body.

The divider will be fabricated of .25 inch thick aluminum plate and attached to the adjustable slide rails. The rear of the divider will have a radius to provide a smooth corner.

Hose payout will be unobstructed by the divider.

### **Hose allowance**

Hose allowance: 800 lbs.

### **Equipment allowance**

Equipment allowance: 1000 lbs.

## **ROLL UP DOORS**

There will be a total of four (4) roll-up doors for compartments L-1, L-2, R-1, R-2 . Each compartment will have a non-locking ROM Series IV roll-up shutter door.

Each shutter slat, track, bottom rail, and drip rail will be constructed from anodized 6063 T6 aluminum. Shutter slats will feature a double wall extrusion with a concave interior surface to minimize loose equipment jamming the shutter door closed. Shutter slats will feature an interlocking end shoe to prevent side to side binding of the shutter door during operation. Slat must have interlocking joints with an inverted locking flange. Slat inner seal will be a one piece PVC extrusion; seal design will be such to prevent metal to metal contact while minimizing dirt and water from entering the compartment.

Shutter door track will be one piece design with integral overlapping flange to provide a clean finished look without the need of caulk. Door track will feature an extruded rubber double lip low profile side seal with a silicone co-extruded back to reduce friction during shutter operation.

Shutter bottom rail will be a one piece double wall extrusion with integrated finger pull. Finger pull will be curved upward with a linear striated surface to improve operator grip while operating the shutter door. Bottom rail will have a smooth contoured interior surface to prevent loose equipment from jamming the shutter door. Bottom rail seal will be a double "V" seal to prevent water and debris from entering compartment. Bottom rail lift bar will be a one piece "D" shaped aluminum extrusion with linear striations to improve operator grip during operation. Lift bar will have a wall thickness of 0.125 inches. Lift bar will be supported by no less than two pivot blocks; pivot blocks will be constructed from Type 66 Glass filled reinforced nylon for superior strength. Bottom rail end blocks will have incorporated drain holes which will allow any moisture that collects inside the extrusion to drain out.

Shutter door will have an enclosed counter balance system. Counter balance system will be 4.00 inches in diameter and held in place by 2 heavy duty 18 gauge zinc plated plates. Counter

balance system will have 2 over-molded rubber guide wheels to provide a smooth transition from vertical track to counter balance system.

The compartment doors will have a satin aluminum finish.

Each roll up door will have an integral door open indicator magnet in the lift bar.

If the door is not properly closed and the transmission is placed into drive or reverse mode with the parking brake released, it will activate the "hazard light" in the cab to alert the crew.

Brushed stainless steel sill plates will be installed at the bottom of each body compartment door opening.

## **WATER TANK**

### **TANK CAPACITY**

A water tank will be installed with a minimum capacity of 2000 US gallons.

### **TANK CONSTRUCTION**

The booster tank will be constructed of .50 inch thick Polyprene sheet stock which is a non-corrosive stress relieved thermoplastic. It will be designed to be completely independent of the body and compartments. All joints and seams are extrusion welded and/or contain the "Bent Edge" and tested for maximum strength and integrity. The top of the tank is fitted with lifting eyes designed with a 3 to 1 safety factor to facilitate tank removal.

### **COVER**

The tank cover will be constructed of .50 inch thick Polyprene and will be recessed. A minimum of two lifting dowels will be drilled and tapped .50 inch x 2.00 inch to accommodate the lifting eyes. The cover will include an integral hosebed.

### **BAFFLES**

The swash partitions will be manufactured from .50 inch Polyprene. All partitions will be equipped with vent and air holes to permit movement of air and water between compartments to provide maximum water flow. All swash partitions interlock and are welded to one another as well as to the walls of the tank.

### **MOUNTING**

The tank will be isolated from the body substructure cross members with .3125 inch x 2.50 inch rubber strips that are 60 durometer in hardness. The tank will sit nested inside the center body substructure and will be completely removable without disturbing the body side panels. Tank

stops on all four sides and tank tie downs will keep the tank from shifting front to back or side to side.

## **FILL TOWER**

The fill tower opening will be approximately 13.00 inches x 13.00 inches.

The tower will have a .25 inch thick removable Polypropylene screen and a Polypropylene hinged type cover that will open if the tank is filled at an excess rate. There will be a removable .25 inch (6.40 mm) thick Polypropylene screen to prevent debris from falling into the tank.

The fill tower will have a 6.00 inch overflow that will discharge underneath the tank, behind the rear axle(s), avoiding the chassis fuel tank and suspension components where applicable. The overflow will terminate above the tank water level when filled to the rated capacity.

The fill tower will be located to the right side at the front of the hose bed

## **SUMP**

The sump will be constructed in an 8.00 inch x 14.00 inch x 1.00 inch deep area.

The construction material will utilize .50 inch Polypropylene and be located in line with the tank suction valve.

## **SUMP PLUG**

The sump will have a 3.00 inch plug for use in draining and cleaning out the tank.

## **OUTLETS**

In addition to the tank suction valve outlet, there will be an outlet provided for the tank fill valve. If there are any additional options selected (such as direct tank inlets), there will be additional outlets provided to accommodate these items.

## **APPARATUS BODY**

### **BODY MATERIAL TYPE**

At a minimum, all formed substructure crossmembers and associated assemblies, exterior panels and compartments will be emergency vehicle industry standard 5052-H32 aluminum alloy. Softer alloys will not be acceptable in the construction processes, except where non-structural bright aluminum treadplate is utilized.

### **FASTENERS**

All fasteners utilized on the substructure crossmembers and associated assemblies will be precision engineered two-piece Huck® C6L bobtail fasteners. The bolted body compartment structures will utilize Huck Magna-Grip® blind fasteners.

Once installed, no matter how vibration-intensive the environment, these fasteners are engineered to never come loose. Huck bolts are to provide direct metal-to-metal contact when installed, to eliminate the transverse vibration often found in conventional nuts and bolts that have a tendency to loosen over time.

### **ANTI-CORROSION PROCESS**

Absolutely no dissimilar metals will be used in the body and its supporting substructure without being separated by ECK®. This process is not required where the fastener is an aluminum Huck-bolt to aluminum components.

### **BODY FINITE ELEMENT ANALYSIS**

The proposed body design must have completed a review and analysis. Analysis to cover both static and dynamic situations must be completed. The purpose of the finite element analysis is to ensure proper design of the apparatus body, and that it is capable of carrying the typical fire apparatus loads and those specified by NFPA for equipment. The analysis process must conclude that the body structure is properly designed and manufactured to provide longevity under normal conditions.

### **BODY MOUNTING SYSTEM**

The entire body module assembly will be mounted above the chassis frame rails exclusively with not less than twelve (12) torsion isolator assemblies to reduce the vibration and stress providing an extremely durable body mounting system.

The body substructure will be mounted above the frame to allow independent flexing to occur between the body and the chassis. Each assembly will be mounted to the chassis frame rails with steel, gusseted mounting brackets. Each body mount bracket will be mounted to the side chassis frame flange with 5/8" Grade 8 Geomet coated (anti-corrosion) bolts. Each mounting bracket will be bolted to the frame using not less than four (4) bolts.

There will be no welding to the chassis frame rail sides, web or flanges, or drilling of holes in the top or bottom frame flanges between axles. All body to chassis connections will be bolted so that in the event of an accident, the body will be easily removable from the truck chassis for repair or replacement.

Because of the constant vibration and twisting action that occurs in chassis frame rails and suspension, the torsion mounting system is required to minimize the possibility of premature body structural failures.

### **Compartment Interior Walls**

All compartment interiors will be smooth aluminum plate.

### **Compartment Floors**

All body compartment floors will be smooth aluminum plate and have a .75 inch lip down ward at the door opening side of the compartment. This lip will form a "sweep-out" compartment. The design will also allow for a complete door / weather seal across the bottom.

Each compartment will have the ability to drain and louvers ventilation adequate to provide air circulation.

## **EXTERIOR COMPARTMENT LOCATIONS AND CONFIGURATION**

### **L-1 - Left Side Forward**

There will be one (1) a compartment ahead of the rear wheels on the left side of the apparatus.

The approximate interior dimensions of this compartment will be not less than 60 inches wide by 37.5 inches high with a full height depth of 26.00 inches.

The approximate pass-thru opening will measure not less than 57.50 inches wide by 30 inches high.

### **L-2 - Left Side Aft of Rear Wheels**

There will be a compartment aft of the rear wheels on the left side of the apparatus.

The approximate interior dimensions of this compartment will be not less than 24.00 inches wide by 37.50 inches high with a full height depth of 26 inches.

The approximate pass-thru opening will measure not less than 21.5 inches wide by 30 inches high.

### **R-1 - Right Side Forward**

There will be one (1) a compartment ahead of the rear wheels on the right side of the apparatus.

The approximate interior dimensions of this compartment will be not less than 60 inches wide by 37.5 inches high with a full height depth of 26.00 inches.

The approximate pass-thru opening will measure not less than 57.50 inches wide by 30 inches high.

### **R-2 - Right Side Aft of Rear Wheels**

There will be a compartment aft of the rear wheels on the left side of the apparatus.

The approximate interior dimensions of this compartment will be not less than 24.00 inches wide by 37.50 inches high with a full height depth of 26 inches.

The approximate pass-thru opening will measure not less than 21.5 inches wide by 30 inches high..

### **COMPARTMENT UNISTRUT**

Vertically mounted Unistrut will be installed in all apparatus body compartments to accommodate the installation of shelves, trays, and or other miscellaneous equipment.

### **HOSEBED**

The hosebed will be a UPF integral hosebed, integral to the water tank.

### **CORNER TRIM – STAINLESS STEEL**

The front and rear of the apparatus body and tank vertical wall overlay will be integrated with a minimum .625 inch satin finish stainless steel corner trim for edge protection. The vertical edge trim will extend from the top to bottom and will be attached with stainless steel fasteners.

### **REAR TAILBOARD**

The tailboard will be an independent assembly bolted to the rear body structural framing to provide body protection and a solid rear stepping platform.

The rear tailboard and body will be constructed such that the angle of departure will be not less than 8 degrees at the rear of the apparatus when fully loaded (NFPA) 1901, Standard for Automotive Fire Apparatus.

The rear tailboard will be approximately not less than 9.50 inches deep and full width of the body. The step surface will be formed bright treadplate aluminum with an embossed aggressive anti-slip pattern.

Three (3) LED rear body marker lights will be centered on the face of the step.

On the rear body surface, a sign will be attached that states: "DO NOT RIDE ON REAR STEP, DEATH OR SERIOUS INJURY MAY RESULT."

### **WHEEL WELLS**

Wheel wells will have semicircular black polymer composite inner liners that are bolted to the wheel well panel. Each wheel well will be a continuous piece with no breaks or ledges where road grime or debris may accumulate. This liner will be removable for access to suspension assembly for repairs. There will be no exception to the bolted wheel well inner liner requirement.

## **FENDERETTES**

Two (2) polished stainless steel fenderettes will be provided and installed on body rear wheel well openings, one (1) each side. Rubber welting will be provided between the body and the crown to seal the seam and restrict moisture from entering.

## **SIDE RUB RAILS**

The lowest edge of the apparatus body side compartments will be trimmed with an extruded C-Channel aluminum extrusion rub rail not less than 3" high x 1.50" deep. Each end of each rail will be capped with a contoured black formed PVC end cap for safety matching the shape of the rub rail. The rub rails will not be constructed as an integral part of the apparatus body structure, allowing each rub rail to be easily removed in the event of damage.

The inside flat surface will be designed to apply retro-reflective striping for added visibility, clearance lights, auxiliary turn signal and NFPA 1901 Lower Zone warning lights.

The rub rails will be secured with stainless steel fasteners and spaced away from the apparatus body with .50 inch nylon spacers to help absorb moderate side impacts and prevent the collection of water and debris for easier cleaning.

## **ADJUSTABLE RACK**

Adjustable tracking shall be provided on the both the left and right side of the apparatus.

The tracking shall be positioned above the compartment top and shall allow for maximum adjustment of items mounted to the tracks.

## **REAR LADDER**

A ladder shall be provided at the officer / right side rear to access the top of the apparatus body. The ladder shall be constructed with 3/8" aluminum plate side rails and 1-1/4" diameter extruded ribbed aluminum steps. The ladder shall be designed with a slight inward taper to facilitate easier climbing. LED lighting shall be provided to illuminate the ladder steps per NFPA.

## **HANDRAILS**

Two (2) handrails will be installed on the rear of the apparatus. Each handrail will be of an adequate length, as available usable space allows, to provide a suitable gripping area for personnel.

One (1) vertical handrail will be installed, driver / left side, just below the hose bed sides. The remaining handrail will be installed officer / right side vertically on the hosebed side.

## **TOW EYES**

There will be two rear tow eyes installed to the frame rails, one each side, accessible below the rear of the apparatus. They will be manufactured of 1.00 inch plate steel 5.00 inch wide with 2.50 inch round hole.

Each plate will be bolted to the chassis frame rail with minimum 5/8" Grade 8 Geomet coated (anti-corrosion) bolts. All steel components will be painted black.

## **MUD FLAPS**

Heavy-duty black rubber mud flaps will be provided behind the rear wheels. The mud flaps will be bolted in place.

## **HOSEBED / CROSSLAY COVERS**

### **HOSEBED**

The hosebed area will have a vinyl cover installed on the top and rear of the hosebed area.

The top cover will be held in place by an extrusion installed across the front edge of the hosebed and Velcro along the left and right edges. The top rear of the hosebed cover will be secured each side by a footman's loop and buckles allowing for the cover to be pulled tight on each side. Additional footman's loops will be provided each side at the lower corners at the floor of the hosebed to secure the cover to the apparatus.

The full cover will have a flap with Velcro closure providing access to each fill tower without necessitating removal of entire hosebed cover.

### **CROSSLAY**

The crosslay hose bed area will have a vinyl cover installed on the top and each side of the crosslay area.

The top cover will be held in place with velcro. The sides of the crosslay cover will be secured by means of two footman's loops and buckles, each side. The footman's loops will be installed at the lower corners to secure the cover to the apparatus.

The hosebed and crosslay covers will be Red color.

## **PORTABLE STORAGE TANK RACK**

A Zico QUIC-LIFT Portable Tank System (PTS) rack shall be provided. The rack shall lower a portable tank from the stored position to provide a safe and convenient height for unloading and loading.

The rack shall be hydraulically operated by two (2) durable high cycle 12 volt actuators and controlled by a 30 amp two-pole double-throw momentary switch located at the officer side rear



body area. The control switch location shall allow the operator to monitor operations, monitor positioning of apparatus mounted equipment in the storage racks travel path and ground personnel while lowering and raising the rack.

The storage rack shall be self-locking in any position during operation. A visual signal shall be provided to indicate when the storage rack is in motion by two (2) yellow flashing lights installed one (1) on each side of the rack.

The rack shall also be wired through the door ajar indicator light located in the cab to alert the driver that the rack is not stowed if the parking brake is released.

The storage rack shall be capable of storing a maximum of three hundred pounds (300 lbs).

The rack shall be located to the officer side of the body and shall be capable of storing a 2100 gallon aluminum frame tank.

## **HARD SUCTION STORAGE [Qty: 2]**

Hard suction hose storage shall be provided on the driver side of the body in an adjustable rack.

The storage rack shall be constructed of aluminum plate and include buckle type hold downs.

The storage rack shall be capable of storing one (1) 6" x 10' hard suction hose each.

## **MANUAL TANK DUMP**

### **TANK DUMP**

A Newton 1050 10" x 10" gated dump chute with manual control will be install on the rear of the tank.

## **WARNING LIGHTS**

### **WHELEN LIGHT BAR**

A Whelen Justice JE2NFPA 56" LT BAR shall be provided. The light bar will be mounted on brackets forward facing above the cab roof.

The light bar shall meet the requirements for Upper Zone A.

## **EMERGENCY WARNING SYSTEM**

### **UPPER ZONE B, C, & D**

There will be a Whelen model R316 Rotator installed on the upper left and right rear body for a total of two (2).

#### **LOWER ZONE A:**

There will be two (2) Whelen C6LRC SurfaceMax™ Super LED lights with chrome bezels installed and installed on the grille of the apparatus chassis.

#### **LOWER ZONE B&D:**

There will be four (4) Whelen ION-TLIR Super-LED lights with chrome bezels installed in the lower rubrails: two (2) each side forward and two (2) each side aft.

#### **LOWER ZONE C:**

There will be two (2) Whelen C6LRC SurfaceMax™ Super-LED lights installed in the lower section of the taillight assembly.

#### **SIREN CONTROL HEAD**

One (1) Whelen electronic siren, model #295SLSA1 will be provided and mounted in the top of the cab console.

The siren will be 100-200 watts and feature wail, yelp, phaser, air horn and manual wail. The microphone will have noise canceling circuitry and Public Address override.

The siren and hard wired microphone will be installed within reach of the driver and officer.

#### **SIREN SPEAKER**

A Whelen model #SA315P 100 watt siren speaker will be provided, located on the front bumper face on the right side outboard of the frame rail in the far outboard position.

#### **BACKUP ALARM**

An electronic back-up alarm will be supplied. The 97 dB alarm will be wired into the chassis back-up lights to signal when the vehicle is in reverse gear.

#### **REARVIEW CAMERA**

There will be a shielded camera mounted up high at the rear of the vehicle to provide a wide angle rear view with audio.

A minimum 5.6" color monitor will be mounted on cab console with swivel capability.

The camera will be interlocked with the chassis transmission. When the apparatus is placed in reverse the camera will automatically be activated and when the transmission is placed in any other gear the screen will return to the previously displayed screen.

## **12V ELECTRICAL**

### **WHELEN SCENE LIGHTS**

There will be four (4) Whelen C6SL SurfaceMax™ Super-LED scene lights installed on the body sides of the apparatus, two (2) on each side; one (1) located at the front and one (1) located at the rear corner of the body side walls for a total of four (4).

They will be activated by a switch marked “Work Light” located on the cab console.

### **ELECTRICAL SYSTEM - VMUX**

#### **ELECTRICAL SYSTEM**

The apparatus shall incorporate a Weldon V-MUX multiplex 12 volt electrical system. The system shall have the capability of delivering multiple signals via a CAN bus. The electrical system installed by the apparatus manufacturer shall conform to current SAE standards, the latest FMVSS standards, and the requirements of the applicable NFPA 1901 standards.

The electrical system shall be pre-wired for optional computer modem accessibility to allow service personnel to easily plug in a modem to allow remote diagnostics.

The electrical circuits shall be provided with low voltage over-current protective devices. Such devices shall be accessible and located in required terminal connection locations or weather-resistant enclosures. The over-current protection shall be suitable for electrical equipment and shall be automatic reset type and meet SAE standards. All electrical equipment, switches, relays, terminals, and connectors shall have a direct current rating of 125 percent of maximum current for which the circuit is protected. The system shall have electro-magnetic interference suppression provided as required in applicable SAE standards.

Any electrical junction or terminal boxes shall be weather-resistant and located away from water spray conditions.

#### **MULTIPLEX SYSTEM**

For superior system integrity, the networked multiplex system shall meet the following minimum component requirements:

- The network system must be Peer to Peer technology based on RS485 protocol. No one module shall hold the programming for other modules. One or two modules on a network referred to as Peer to Peer, while the rest of the network consists of a one master and several slaves is not considered Peer to Peer for this application.

- Modules shall be IP67 rated to handle the extreme operating environment found in the fire service industry.
- All modules shall be solid state circuitry utilizing MOS-FET technology and utilize Deutsch series input/output connectors.
- Each module that controls a device shall hold its own configuration program.
- Each module should be able to function as a standalone module. No “add-on” module will be acceptable to achieve this form of operation.
- Load shedding power management (8 levels).
- Switch input capability for chassis functions.
- Responsible for lighting device activation.
- Self-contained diagnostic indicators.
- Wire harness needed to interface electrical devices with multiplex modules.
- The grounds from each device should return to main ground trunk in each sub harness by the use of ultrasonic splices.

## **WIRING**

All harnessing, wiring and connectors shall be manufactured to the following standards/guidelines. No exceptions.

- NFPA 1901-Standard for Automotive Fire Apparatus
- SAE J1127 and J1127
- IPC/WHMA-A-620 – Requirements and Acceptance for Cable and Wire Harness Assemblies. (Class 3 – High Performance Electronic Products)

All wiring shall be copper or copper alloys of a gauge rated to carry 125 of the maximum current for which the circuit is protected. Insulated wire and cable 8 gauge and smaller shall be SXL, GXL, or TXL per SAE J1128. Conductors 6 gauge and larger shall be SXL or SGT per SAE J1127.

All wiring shall be colored coded and imprinted with the circuits function. Minimum height of imprinted characters shall not be less than .082” plus or minus .01”. The imprinted characters shall repeat at a distance not greater than 3”.

A coil of wire shall be provided behind electrical appliances to allow them to be pulled away from mounting area for inspection and service work.

## **WIRING PROTECTION**

The overall covering of the conductors shall be loom or braid.

Braid style wiring covers shall be constructed using a woven PVC-coated nylon multifilament braiding yarn. The yarn shall have a diameter of no less than .04” and a tensile strength of 22 lbs. The yarn shall have a service temperature rating of -65 F to 194 F. The braid shall consist of 24 strands of yarn with 21 black and 3 yellow. The yellow shall be oriented the same and be next to each other.

Wiring loom shall be flame retardant black nylon. The loom shall have a service temperature of -40 F to 300 F and be secured to the wire bundle with adhesive-backed vinyl tape.

## **WIRING CONNECTORS**

All connectors shall be Deutsch series unless a different series of connector is needed to mate to a supplier's component. The connectors and terminals shall be assembled per the connector/terminal manufacturer's specification. Crimble/Solderless terminals shall be acceptable. Heat shrink style shall be utilized unless used within the confines of the cab.

## **NFPA REQUIRED TESTING OF ELECTRICAL SYSTEM**

The apparatus shall be electrical tested upon completion of the vehicle and prior to delivery. The electrical testing, certifications, and test results shall be submitted with delivery documentation per requirements of NFPA 1901. The following minimum testing shall be completed by the apparatus manufacturer:

### **1. Reserve capacity test:**

The engine shall be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged. The engine shall be shut off and the minimum continuous electrical load shall be activated for ten (10) minutes. All electrical loads shall be turned off prior to attempting to restart the engine. The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered a test fail.

### **2. Alternator performance test at idle:**

The minimum continuous electrical load shall be activated with the engine running at idle speed. The engine temperature shall be stabilized at normal operating temperature. The battery system shall be tested to detect the presence of battery discharge current. The detection of battery discharge current shall be considered a test failure.

### **3. Alternator performance test at full load:**

The total continuous electrical load shall be activated with the engine running up to the engine manufacturer's governed speed. The test duration shall be a minimum of two (2) hours. Activation of the load management system shall be permitted during this test. However, an alarm sounded by excessive battery discharge, as detected by the system required in NFPA 1901 Standard, or a system voltage of less than 11.7 volts DC for a 12 volt nominal system, for more than 120 seconds, shall be considered a test failure.

### **4. Low voltage alarm test:**

Following the completion of the above tests, the engine shall be shut off. The total continuous electrical load shall be activated and shall continue to be applied until the excessive battery

discharge alarm activates. The battery voltage shall be measured at the battery terminals. With the load still applied, a reading of less than 11.7 volts DC for a 12 volt nominal system shall be considered a test failure. The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure.

## **NFPA REQUIRED DOCUMENTATION**

The following documentation shall be provided on delivery of the apparatus:

- A. Documentation of the electrical system performance tests required above.
- B. A written load analysis, including:
  - a. The nameplate rating of the alternator.
  - b. The alternator rating under the conditions.
  - c. Each specified component load.
  - d. Individual intermittent loads.

## **VEHICLE DATA RECORDER**

A vehicle data recorder system will be provided to comply with NFPA 1901, 2009 edition. The following data will be monitored:

- Vehicle speed MPH
- Acceleration (from speedometer) MPH/Sec.
- Deceleration (from speedometer) MPH/Sec.
- Engine speed RPM
- Engine throttle position % of full throttle
- ABS Event On/Off
- Seat occupied status Occupied Yes/No by position
- Seat belt status Buckled Yes/No by position
- Master Optical Warning Device Switch On/Off
- Time: 24 hour time
- Date: Year/Month/Day

## **OCCUPANT DETECTION SYSTEM**

There will be a visual and audible warning system installed in the cab that indicates the occupant buckle status of all cab seating positions that are designed to be occupied during vehicle movement.

The audible warning will activate when the vehicle's park brake is released and a seat position is not in a valid state. A valid state is defined as a seat that is unoccupied and the seat belt is unbuckled, or one that has the seat belt buckled after the seat has been occupied.

The visual warning will consist of a graphical representation of each cab seat in the multiplex display screen that will continuously indicate the validity of each seat position.

The system will include a seat sensor and safety belt latch switch for each cab seating position, audible alarm and wiring harness.

## **ELECTRICAL CONNECTION PROTECTION**

The vehicle electrical system will be made more robust by the application of a corrosion inhibiting spray coating on all exposed electrical connections on the chassis and body. If equipped with an aerial device, the exposed connections on the aerial components will also be protected.

The coating will use nanotechnology to penetrate at the molecular level into uneven surfaces to create a protective water repellent film. The coating will protect electrical connections against the environmental conditions apparatus are commonly exposed to.

## **CAB CONTROL CONSOLE**

The control center console will be fabricated of minimum .125 inch smooth aluminum and will be installed between the driver and officer seat. The base of the console will be custom trim-fit to the chassis floor line and be securely fastened.

This area will serve as the main electrical distribution point for all chassis related functions and contain the majority of the hardware related to these functions.

## **ROCKER SWITCH PANEL**

All specified lighting fixtures and electrical components will be activated by rocker style switches. The switches will be located on a separate embossed electrical panel, fabricated with aluminum complete with backlit name tags describing the function of each individual switch and installed on the console specified.

An internally lighted red rocker switch will be furnished on the left and identified as the "MASTER WARNING".

## **12-VOLT CHARGER PORT**

A USB charger port will be installed in the top of the console. It will be provided with a tethered rubber cover. It will be wired directly to battery hot.

## **BATTERY SWITCH**

There will be a rotary style battery disconnect switch installed on the floor left of the driver's seat to activate the battery system.

## **AUTO THROTTLE**

Engine will increase in RPM to a preset amount if the battery voltage drops below 11.7V and the pump is not engaged or transmission placed in drive gear.

## **HAZARD LIGHT IN CAB**

There will be a LED "Door Open" indicator light provided and installed in the chassis cab. The light will be installed on the console and will activate when the parking brake is released and a compartment door or any additional specified accessible devices are not in the completely closed positions.

A warning placard will be installed in the apparatus cab near the light, stating "Do Not Move Apparatus When Light Is On."

## **BATTERY CHARGER**

A minimum 45-amp (12 volt) battery charger/conditioner will be provided and installed in the "best fit" location as determined by the apparatus manufacture.

The battery charger will automatically regulate operation output to a single battery bank. A built in sensing circuit will check the battery voltage 120 times per second, to compensate for voltage drop in charging wires and provide quick recharge, with no overcharge.

## **SHORELINE RECEPTACLE W/AUTO EJECT**

A Kussmaul "Super Auto-Eject" 120 volt 20 amp shoreline receptacle will be installed on the apparatus. It will automatically eject the plug when the starter button is depressed.

The electrical current will be interrupted before the plug is automatically ejected to prevent arcing. The plug for the receptacle will be shipped loose for installation on the shoreline cord.

The shoreline connection will be installed under the driver's door step area at the lower step level and placed forward of the immediate stepping area where space allows.

The electrical inlet will be connected to the battery charger.

The shoreline inlet connection will include a yellow cover.

## **DOT LIGHTING**

There will be seven (7) lights located on the rear of the apparatus. Three (3) of the lights will be mounted on the rear of the apparatus center location, for use as identification lamps. Two (2) additional lights will be located on the rear outboard locations, one (1) each side as high as possible. Two (2) lights will be mounted in the rubrails on the sides facing the side at the rear corners, for use as clearance lamps.



## **REAR TAIL LIGHT ASSEMBLY**

There will be Whelen C6 series SurfaceMax™ Super LED rear tail light assemblies provided and installed with the apparatus, one (1) each side at the rear.

The following will be installed in each taillight stack:

One (1) C6BTT red brake/tail light

One (1) C6TC amber arrow turn signal light

One (1) C6BUL clear backup light

One (1) C6LRC warning light on the bottom of the stack

They will be mounted in PLASC4V chrome flanges provided for each tail light assembly.

## **ENGINE COMPARTMENT LIGHT**

There will be one (1) 12 volt LED work light installed in the engine compartment on the firewall. The light will have an integrated on/off switch.

## **CAB STEP LIGHTS**

There will be a LED light installed underneath each of the apparatus cab steps meeting NFPA1901 lumen requirements. The lights will be positioned to provide illumination to the ground area or the lower step under the cab entry doors.

The lights will be activated by the opening of any cab door and work light switch in the cab console.

## **UNDER BODY LIGHTS**

There will be one (1) perimeter light mounted centered under the front bumper to illuminate the ground area under the bumper.

The under bumper perimeter lights will illuminate the area with the activation of the work light switch in the cab dash and with the parking brake applied.

One (1) under each side of the pump house running boards and two (2) under the rear tailboard.

## **LED INTERMEDIATE TURN SIGNAL LIGHTING**

There will be two (2) amber intermediate turn signals and two (2) amber intermediate marker lights on the sides of the apparatus (one (1) each per side) between the front and rear axles.

The lights will be Weldon brand 9186-1500 series LED amber markers.

### **INTERMEDIATE TURN SIGNALS**

The intermediate turn signals will flash with the turn indicators.

### **COMPARTMENT LIGHTING**

One (1) LED Tube light model #RX-15T16-5050, will be installed in each body compartment. The tube light will be centered vertically along the forward side of the door framing and at maximum length available to fit the opening.

The light in each compartment will be on a separate circuit, turning on only those lights that have open compartment doors.

### **LED CROSSLAY HOSEBED FLOOD LIGHT**

There will be one (1) LED light with clear LED wide flood lamp rated at not less than 750 lumens installed on the top center of the cross compartment. It will be capable of illuminating the entire crosslay hose bed area.

It will be manually activated by the Work Light switch located on the cab console.

### **LED HOSEBED FLOOD LIGHTS**

There will be an LED minimum 6:00 x 3.00 inch LED flood light with clear lens located at the front of the hosebed rated at not less than 1900 lumens capable of illuminating the entire hosebed area.

It will be manually activated by the Work Light switch located on the cab console.

### **REAR BODY SCENE / WORK LIGHTS**

There will be two (2) Whelen C9SL SurfaceMax™ Super-LED scene lights installed on the rear facing vertical surface of the body, one (1) on each side.

They will be activated by a switch marked "Work Light" located on the cab console or whenever the apparatus is placed in the reverse mode of operation to access with backing.

## **NFPA EQUIPMENT**

### **NFPA Compliant Supplied by Vendor**

The following list of NFPA Complaint Equipment shall pe provided by the vendor:

- 2 HARD SUCTION HOSE 6X10 PVC
- 1 STRAINER 6 BARREL KBRITE
- 2 BALL SHUT OFF 1.5" W/GRIP NOZZLES
- 2 LIGHT STREAMLIGHT VULCAN LED
- 1 20LB ABC EXTINGUISHER
- 1 BRACKET UNIVERSAL MOUNT EXTINGUISHER
- 2 WRENCH SPANNER SET (2 SPANNERS AND 1 HYDRANT)
- 1 DOUBLE SWIVEL FEMALE ALUMINUM ADAPTER 2.5"x2.5"
- 1 DOUBLE MALE ALUMINUM ADAPTER 2.5"x2.5"
- 1 MALLET 2 POUNDS CONNECTION
- 2 HOLDER CHOC HOLDERS
- 2 WHEEL CHOCKS 32"
- 2 DUAL CERTIFIED SAFETY VESTS
- 1 DEFIBRILLATOR AED PLUS
- 1 GATED INTAKE 6" NHM X 6" NHFS
- 16 HOSE 2.5 X 50 DJ HN CLP YEL 2.5 NH
- 8 HOSE 1.75" X 50' DJ 800 YEL 1.5 NH
- 5 28" TRAFFIC CONE W/REFL COLLAR
- 5 DARLEY SAFETY FLARES
- 2 SCBA BRACKETS
- 2 HELMET HOLDERS
- 1 FIRST AID KIT PRO RESPONSE KIT
- Assortment of brackets to host the loose equipment.

## **PAINT / GRAPHICS**

### **BODY COLOR**

The body side panels will be painted to match the primary cab color.

### **STRIPING**

#### **CAB AND BODY STRIPE**

A single straight Scotchlite stripe, up to 6 inches in width shall be installed on the cab and body.

The stripe shall be NFPA compliant and the size, color and location shall be as specified by the customer.

#### **REAR CHEVRON STRIPE**

Printed chevron style Scotchlite striping shall be provided on the rear of the apparatus. The stripes shall consist of 6" red/lemon yellow alternating stripes in an "A" pattern. The striping

shall be located full width on rear of body each side of B1. Colors shall be Red/Lemon yellow. Does not include B1 Door.

## **WARRANTY / STANDARD & EXTENDED**

### **General 1 Year Warranty**

Purchaser shall receive a General One (1) Year or 24,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0001. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

### **Body Structural (Aluminum) Warranty**

Purchaser shall receive a Body Structure (Aluminum) Fifteen (15) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW . The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

### **Electrical Warranty**

Purchaser shall receive an Electrical One (1) Year or 18,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0201. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

### **Paint and Finish (FRP Panels) Warranty**

Purchaser shall receive a Paint and Finish (Exterior FRP Panels) Twelve (12) Years limited warranty in accordance with, and subject to, warranty certificate RFW0722. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.